While digitalis may in rare instances exert a direct action upon the brain, it is possible that in some cases when overdoses are given, it may, by disturbing the cardiac rhythm through its action on the conducting mechanism, still further impair an already inadequate circulation. On the whole, however, considering the universal use of the drug and the carelessness in dosage, one would expect that if digitalis could cause psychoses they would be much more frequent.

5. Several years ago I had the following experience: Mr. H. B. B., a man in the late fifties, was suffering with cardiovascular disease, with extreme dropsy. I tried digitalis and all other well-known diuretics without result. About that time agurin appeared on the market. I prescribed it and was amazed to find the urine output increased to an enormous degree, with a coincident rapid disappearance of serous effusions and of every trace of dropsy. During the time that the patient was putting out huge quantities of urine (in one day more than 200 ounces), he developed a delirious, incoherent state, which lasted several days and proved most distressing to his devoted family. I attributed it to a swamping of the system with the toxic material that had been held in solution in the dropsical fluid, and which, in order to reach the kidneys, had to return to the general circulation.

6. In cases in which the foregoing factors are lacking, in which the cardiac patient without neuropathic taint, nephritis, acidosis or exogenous intoxication, develops an acute psychosis, we may assume that it is due to some direct disturbance of the cerebral circulation, affecting the higher centers. At times there is probably syphilitic disease of the vessels, but that is not a prerequisite. Dana's hypothesis[8] concerning the part played by the neuronic synapses may help us to understand why, in disturbances of the circulation, alterations may occur in the psyche. Nevertheless, it is still a far cry from hypofunction of the synapses to an understanding of mental exaltation or depression, of hallucinations or of confusional states.

Not much need be said about treatment, which will vary with the type of disturbance found. Maniacal patients often do not respond to morphin or any of its congeners. I have obtained better results with chloral, which I believe to be not so depressive to the heart as it is usually considered.

As regards diagnosis, it is always necessary to bear in mind that acute mania or melancholia may be symptomatic of visceral disease, in particular, of disease of the heart, and that patients so affected are not of necessity subjects for the asylum. The prognosis is governed by the state of the circulation—if the patient's heart holds out his psychosis will disappear.

[8] Jour. Am. Med. Assn., April 24, 1920.

WHOOPING-COUGH CONTRACTED AT THE TIME OF BIRTH, WITH REPORT OF TWO CASES.

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Whooping-cough during the first month of infancy is sufficiently rare that the two cases reported below, in which exposure occurred at the time of birth, are of considerable interest. The infection in each of these cases was from the obstetric nurse, who was in the first week of her attack of whooping-cough. Her cough was not of sufficient severity that she considered it necessary to report it to the obstetrician. In the first case reported she assisted, at the time of labor, the regular nurse for twenty-four hours, and then went to the second case, this baby being born three days later. Although her cough grew steadily worse she did not suspect that it was due to whooping-cough. It should be a golden rule that a nurse who has a cough should not take an obstetric case. I believe, too, that pertussis in adults is often unrecognized, and this is accountable in many cases for the spread of the disease. In one year in three different families, I saw six cases of pertussis contracted from nurses who had coughs, which they thought were due to "ordinary colds." The prevalent idea among the laity, and sometimes among physicians and nurses, that adults seldom contract whooping-cough is responsible for lack of quarantine.

The following are the two cases I wish to report:

Case I.—Female, of healthy parents, was born May 28, 1914. The birth was two weeks premature and the weight of the baby was five pounds ten ounces. During the first three days the child lost six ounces, but these were regained by the end of the first week. A steady gain of one ounce a day was recorded until the tenth day, when the infant began to cough. On the eleventh and twelfth days the cough increased in severity, so that it interfered greatly with nursing, and the food was regurgitated. On the fourteenth day after birth the infant began to whoop, the paroxysms steadily increasing in number and severity, so that on the sixteenth day they numbered twenty-two. On the seventeenth day there were twenty-eight, on the eighteenth thirty, on the nineteenth thirty-eight. During the paroxysms the baby became deeply cyanosed and at times it was with great difficulty that breathing was again established. On the morning of the twenty-first day the infant became stuporous and within a few hours sank into coma; the fontanelle became tense and there was a paresis of one side of the face. The breathing assumed the Cheyne-Stokes type, with periods of apnea lasting forty seconds. The coma deepened and death occurred that evening. No autopsy was permitted, but the cause of death was evidently a cerebral hemorrhage.

Case II.—Female infant was born June 3, 1914, at full term, weight eight pounds fourteen ounces. The obstetric nurse in attendance had assisted as second nurse in the case of the baby in Case I. At that time she was coughing a great deal but had not reported her cough to the obstetrician, as she did not herself suspect that she had whooping-cough. This second baby began to cough on June 11 and whooped on June 15. The disease ran a moderately severe course for six weeks, the number of paroxysms varying from twelve to twenty in twenty-four hours at the height of the disease. When eight weeks old the baby weighed ten pounds four ounces and during the remainder of the first year thrived well, weighing twenty-two pounds when one year old.

Whooping-cough during the first month may be congenital, but the majority of cases are acquired. Cockayne states that Sir Thomas Watson described a case in which the disease was contracted before the patient was born, saying: "My bedmaker's daughter in Cambridge had a child ill with whooping-cough in the house with her during the last weeks of pregnancy and the newcomer whooped the first day he appeared in the world." Rilliet and Barthez, quoted by the same author, mention the case of a newborn child whose mother had had whooping-cough for a month and who had characteristic fits of coughing on the day of its birth. Blache reports a case as congenital in which the baby began to cough six days after birth, the mother having had whooping-cough, and who had contracted the disease from another child. This case may well be regarded as of doubtful congenital origin, as it would be more likely that the disease was contracted at the time of birth.

Cooper Cole has reported a case of whooping-cough in a premature infant. The mother who had developed very severe whooping-cough in the sixth month of pregnancy gave birth to a well-developed eight months' male infant on May 26. On May 29 the baby coughed for the first time. During the next fortnight the temperature ranged from 99° to 100° F. and the cough became more severe and paroxysmal until June 12, seventeen days after birth, when the child had a typical paroxysm ending in a whoop. For three weeks the paroxysms ranged from twelve to twenty-two daily. Recovery took place and at six months the patient was the equal of any other child of that age. The fact that the baby did not whoop until seventeen days after birth might cast some doubt on the congenital character of this case. That the incubation period of whooping-cough may be very short is shown by a case reported by Cockayne. In his case the baby began to cough on the fifth day after birth, the disease being contracted from his brother, aged three and a half years, who was allowed to lie on the bed the day after birth and kissed both mother and baby. Bouchut has resported one case in which the infant began to cough two days after exposure. Frederici and Gerhart mention the fact that the incubation period of whooping-cough may be as short as two days, the average time in my own experience being ten to twelve days. With such a short incubation period occasionally occurring in whooping-cough considerable doubt would be cast on some of the cases reported as congenital. The writer cared for three mothers who have acquired whooping-cough in the last month of pregnancy without the babies showing any sign of the disease. When infection does occur it must be through the blood as is the case in congenital typhoid fever.

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EXPERIMENTAL STUDIES IN DIABETES:

SERIES II. THE INTERNAL PANCREATIC FUNCTION IN RELATION TO BODY MASS AND METABOLISM.

III. THE EFFECTS OF EXERCISE.

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The preceding paper dealt particularly with the metabolism of matter, in the form of changes in the food supply and bodily reserves. The present paper is devoted to the metabolism of